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*The Eighth Annual  
Governor's  
Pollution Prevention  
Awards*

*Award Ceremony September 21, 1994  
The Executive Mansion  
Springfield, Illinois*



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## EIGHTH ANNUAL

## EIGHTH ANNUAL GOVERNOR'S POLLUTION AWARDS

GOVERNOR'S  
PREVENTION AWARDS.

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## Waste Management and Center

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## *Eighth Annual Governor's Pollution Prevention Awards*

The 1994 Governor's Pollution Prevention Awards are presented to honor businesses and other organizations in Illinois that have successfully reduced the generation of wastes and the use of toxic chemicals. These wastes include toxic air contaminants, wastewaters, infectious wastes, energy usage, plus hazardous and other industrial process wastes. By recognizing the outstanding achievements of these organizations in pollution prevention, it is our hope that others will be encouraged to do their share in preventing pollution at the source.

Since 1987, the Hazardous Waste Research and Information Center has worked with the Governor's Office and the Illinois Environmental Protection Agency to recognize outstanding pollution prevention efforts in our state. By adopting pollution prevention strategies, it has been shown that businesses and others can increase the efficiency of their operations and reduce their impacts on the environment. Organizations are recognized in the following categories: trade organizations, educational institutions, vendors, community, and small, medium, and large industries.



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# **Eighth Annual Governor's Pollution Prevention Awards**



## **Large Facility** *(> 500 Employees)*



### **Chrysler Corporation Belvidere, Illinois**

Chrysler Corporation's Belvidere Assembly plant produces the Dodge and Plymouth Neon automobiles. Operations at the facility include assembly, painting, stamping, and fascia molding. The plant has undertaken numerous programs to reduce their total emis-

sions to the air, land, and water. These programs included using waterborne paints for vehicle topcoats which reduced solvent use by 20%, using waterborne underbody deadener which eliminated solvent hazardous waste which amounted to 0.12 pounds per car, replacing Freon 12 with HFC-134(a) in vehicle air conditioners, modifying wastewater treatment precipitation by substituting alum for Dearborn 412 which resulted in a 90 cubic yard per month reduction in sludge generation, sealer reformations which have reduced phalate usage by over 98%, and coal to gas boiler conversions which increased utility efficiency to 85%. Through implementation of these and other programs Chrysler has reduced its emissions to the air by 735 tons per year and reduced their waste disposal by over 17 tons per year. The economic benefits of these programs is well over \$350,000 per year. Chrysler's total pollution prevention program is composed of management and employee teams and provides pollution prevention training to all Chrysler employees.



## **Olin Corporation East Alton, Illinois**

The Olin-East Alton facility is a manufacturing facility that produces and distributes brass and brass alloys and also produces Winchester ammunition for both private and public sector clients. Since 1990 Olin has had a "Total Chemical Management" pro-

gram which encompasses various operating areas to evaluate their processes, identify chemicals used and the waste they generate, and identify and implement techniques to reduce usage of these chemicals. Multi-disciplinary teams from the various production areas are in charge of the evaluation process. Some of the projects that were undertaken by the teams included: a 79% reduction in the use of the solvent trichloroethane (TCA) in the various production areas by reformulating an existing product, the use of alternative products, equipment modification, and product elimination. Mineral spirits which were utilized throughout the facility for parts cleaning were reduced by 88% through substitution with a water-based alternative or use of an industrial cleaning machine which is effective without the use of an aqueous-based cleaner. In the Winchester production area, bullets were cleaned using a combination of corn cobs (cob meal) and TCA as the tumbling media (lead from the bullets was also contained in the waste). The tumbling media was replaced with Triple Super Phosphate which encapsulates the lead so that the metals cannot be leached. This project saved Olin a total of \$132,665 in raw materials and disposal costs.



## **Amoco Chemical Company Joliet, Illinois**

Amoco Chemical Company is an organic chemical manufacturing facility. Amoco has implemented numerous environmental programs at their Joliet plant. Projects included in their program are a trimellitic anhydride (TMA) unit dehydration tower which condenses tower vent emissions and

recovers the pseudocumene (a raw material) which is then recycled back to the reactor feed. Amoco's purified isophthalic acid (IPA) unit has implemented reactor catalyst changes through material substitution, lowering reactor temperature, optimizing mother liquor recycle that feeds from their crystallizer filter, and condensing the dehydration tower vent which has reduced volatile organic chemical (VOC) releases. In the polystyrene unit process, VOC emissions were reduced by lowering the inert gas purge on feed dissolvers and vacuum system reservoirs (new procedures were written to keep the inert gas purge lower). These projects have reduced Amoco's VOC emissions by 465 tons per year and their SARA air emissions by 42%. Amoco further reduced its fugitive emissions by 90% through implementation of a Leak Detection and Repair Program. Additionally, by reclaiming methane gas produced in their anaerobic wastewater treatment plant and by using it as a fuel source in their industrial boilers, Amoco has reduced their natural gas usage by 10%.



## **Argonne National Laboratory Argonne, Illinois**

Argonne National Laboratory (ANL) is a Department of Energy Laboratory operated by the University of Chicago. ANL used "life-cycle" engineering in the design phase of the construction of an Advanced Photon Source (APS) system. ANL engineers reviewed procedures for cleaning accelerator parts and refabricated components so they would not require large quantities of surface contaminants, i.e. insoluble cutting oils, in the manufacturing process. Cleaning procedures for accelerator parts were developed using ultra-sonic power cleaning baths which utilized degradable detergents. This new cleaning procedure for aluminum and stainless steel parts produces a cleaner surface than previous state of the art procedures. The completed procedure will eliminate degreaser solutions, strong caustics, acids, and solvents. The initial savings on this front-end design will be \$300,000 in waste disposal costs the first year.



## **Mobil Oil Joliet Refinery Joliet, Illinois**

Mobil Oil processes a mixture of U.S. and Canadian crude oils into gasoline and distillate products for distribution to markets throughout the Midwest. Mobil initiated the Clean Fuels Project for production of Low Sulfur Diesel fuel. Process modifications which were implemented include the installation of a third amine train and three stage Claus Sulfur Recovery Unit that recovers 99.8% of the sulfur, reducing their emissions by 1,465 tons per year. Mobil reduced their volatile hydrocarbon emissions (specifically benzene) by installing new fully enclosed sampling stations to replace the purge flow sample stations which now allows fresh samples to be taken without the need to purge the sample line to the oily water separator. Spent lime from the water softening process is being used as a substitute fertilizer for the local fertilizer market, saving \$115,000 in dewatering/filter press and landfill disposal costs. Mobil does have a waste minimization team (WMIN) and waste minimization program in place. In addition to these activities, Mobil recycles/reuses its used catalyst offsite saving \$280,000 per year.



## **Motorola ILO2 Facility Schaumburg, Illinois**

Motorola ILO2 designs, manufactures, and distributes analog and digital two-way radio products, quartz and ceramic products, and systems for conventional, shared and private applications worldwide. Through formation of a Total Customer Satisfaction Team, Motorola has reduced its Volatile Organic Material (VOM) emissions from 98 tons per year (tpy) to 24.7 tpy; a reduction of 75%. Motorola achieved their self-imposed reduction goal by considering VOMs a defect and used quality improvement techniques to address the challenge. By reducing their VOM emis-

sions, Motorola saved \$5 million dollars by remaining an “area source” rather than a “major source” of VOM emissions. Additional process changes to their Nitrogen Wave Soldering equipment saved Motorola \$151,000 per year.



## **Motorola Lighting Inc. Buffalo Grove, Illinois**

Motorola Lighting Inc. (MLI) manufactures electronic ballasts. MLI successfully transferred a technology that eliminated the use of terpene based cleaners on circuit boards in their ballasts. Implementation of the no-clean technology reduced MLI's volatile organic chemical emissions by 85% and saved \$588,000 per five million ballasts manufactured. MLI also reduced the lead content in the alloy used to solder magnetic components to the ballast by 55%, through substitution of a lower lead content alloy. These process changes reduced waste volume and toxicity throughout MLI's manufacturing plant.



## **Sundstrand Aerospace Rockford, Illinois**

Sundstrand Aerospace is a manufacturer of aerospace components. Sundstrand has reduced its solvent usage by 59% saving \$355,000 in raw material and disposal costs. This reduction was the result of numerous programs to reduce waste volume such as: installation of an aqueous ultrasonic cleaning system, a high volume low pressure paint system, and elimination of vapor degreasers.

Another important element in Sundstrand's Waste Minimization/Pollution Prevention Program is energy conservation. Sundstrand has made an impressive reduction in energy use through modification and installation of

energy efficient lighting systems throughout the plant and adjacent areas. They have also reduced the electrical consumption of their air conditioning systems by modernizing their controls and installing new motors and an energy management system. These modifications have saved Sundstrand \$200,000 a year in energy costs.



## **Medium Facility**

*(150 - 500 Employees)*



### **Nichols-Homeshield Chatsworth Chatsworth, Illinois**

Nichols-Homeshield Chatsworth rollforms mill finished and painted aluminum and steel into pre-engineered shapes. They have a total pollution prevention program that utilizes work center teams to

provide, evaluate and implement pollution prevention projects and rewards employee involvement. Employees initiated a program to utilize solvent distillation still-bottoms as a paint reducing agent for their coil coating department. This initiative resulted in a \$3,000 per year savings in waste disposal and raw material purchases. They implemented a counter flow coil washing and rinsing process which reduced water usage by 67%, saving \$5,000 annually in operating costs. Their maintenance department substituted naphtha solvent used for parts cleaning for an aqueous-based cleaner. This change out eliminated the toxicity of the waste stream. An inventory tracking system was implemented and used to reduce paint waste associated with end-of-shelf life by 110 gallons annually. Nichols-Homeshield eliminated the use of four SARA 313 chemicals by switching to a less volatile clean-up solvent.

## **Small Facility**

*(1-150 Employees)*



### **Medi-Physics, Inc. Arlington Heights, Illinois**

Medi-Physics, Inc. manufactures and distributes radiopharmaceuticals used in diagnostic and therapeutic nuclear medicine, and therapeutic radioactive sources used in the treatment of cancer. Medi-Physics

designed and implemented a new process to replace acid dissolution of enriched targets used to produce short-lived isotopes. The new process utilizes chemical engineering technology to mechanically enhance the removal of the isotopes from the targets. The new process eliminated the isotope by-product and enhanced the yield of the needed isotope during target bombardment. The process modification resulted in a 52% reduction in lost raw materials for a savings of \$76,000 per year. The amount of long-lived isotope in the corrosive waste stream was reduced by a factor of 2,000, reducing Medi-Physics' waste disposal costs by \$10,000 per year. Medi-Physics utilizes employee teams to conceive, develop, and implement pollution prevention activities.



### **Central Illinois Light Company Peoria, Illinois**

Central Illinois Light Company's (CILCO) Duck Creek Power Plant is a coal-burning power plant. CILCO's business plan states "reduce, reuse and recycle waste and by-products to support CILCO's pollution prevention policy". In support of this policy, CILCO has modified their process to allow "coal fines" to be used as a fuel source for electric energy production. These "coal fines," a waste by-product from a nearby coal mine,

allow for less use of virgin coal (less mining to the land). The employee-inspired modification allows for the entire slurry pond material (3 million tons) to be used without water resources. This reclamation project will save utility customers over \$900,000 annually. Employees are enticed to suggest pollution prevention ideas through the "Share-The-Savings" program at CILCO.



## Trade Organization



### **Chemical Industry Council of Illinois Rosemont, Illinois**

The Chemical Industry Council of Illinois (CICI) is an association of 137 member companies that promotes pollution prevention activities within its membership. CICI has formed an advisory panel for the Partners in Pollution Prevention Program (PIPP) comprised of members from Illinois business associations, IEPA, and environmental groups. This panel was formed to increase statewide PIPP membership. As a partner in the Chemical Manufacturers Association's Responsible Care Program initiative, CICI has conducted training classes and promoted this initiative which has been adopted by the chemical industries in Europe, Japan, Mexico, and Australia. CICI also promotes safety to school children regarding chemical spills and natural disasters, and assists Northwestern Illinois communities who are combatting graffiti.



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# Vendor



## **Eichrom Industries, Inc. Darien, Illinois**

Eichrom Industries, Inc. is a separations technology company which delivers innovative and cost-effective metals separations projects for analytical, process, recycling, and decontamination applications world-

wide. Eichrom Industries, Inc. has developed Eichrom's Spec resins as an alternative method to the three common analytical methods (precipitation, solvent extraction, and ion exchange) used to determine the levels of radioactivity in the environment. The separation process is called extraction chromatography and generates considerably less laboratory waste. Based on employee suggestions the company has revamped its manufacturing process and through process reutilization, distillation, and on-site recycling has reduced its use of methanol by 75% and its use of acetone by more than 60%. Eichrom's technical services group assists client laboratories in streamlining analytical methods and reducing the wastes which are generated in environmental analyses. Eichrom recognizes the best efforts of its employees to make the company more efficient and environmentally aware through its "Hero of the Month" award.



## **Illini FS Inc. Urbana, Illinois**

Illini FS is a farm supply and service cooperative. They have implemented the use of Variable Rate Technology (VRT), an environmentally positive technology that varies the applied rates of fertilizer, lime, and herbicides at different locations in a field. VRT is a computer applied application which

is based on present nutrient levels of the soil. Soil input is gathered utilizing a computerized soil analysis system and a Global Positioning System (GPS) to enhance accuracy and location. VRT usage has reduced the prescribed rates of applied chemicals by 10-15%. Additionally, Illini FS has constructed a pump and piping arrangement to recover its spills and rinsate and segregates them for direct loading and use, reuse as make-up solution or spreading as diluted solution when possible.



## **Poly Enviro Laboratory, Inc. Alsip, Illinois**

Poly Enviro Laboratory, Inc. manufactures specialty chemicals for the metal working industry, such as synthetic lubricants for cutting, grinding and forming. Poly Enviro Laboratory has developed a unique heated applicator and a 100% solids lubricant to replace solvent based lubricants. This lubricant is applicable to the soft-drink, beer, and food can manufacturing industries in their can neck-in process. The new lubricant reduces lubricant consumption by 90% and solvent emissions by >95%.



## **Educational Institution**



## **University of Illinois Urbana, Illinois**

The University of Illinois at Urbana-Champaign is a state educational facility housing over 36,000 students. In their residency dormitories the University has replaced the 75 watt incandescent light bulbs used in student desk lamps with 22 watt fluorescent bulbs. This substitution has

saved the University 32% in electrical energy costs, a savings of \$50,000 annually. They have also replaced all showerheads with low flow showerheads which reduced the amount of water used in the dormitories by 17%. In addition to these activities the U of I also has an extensive recycling program.



## Community



### **Northwest Community Hospital Arlington Heights, Illinois**

Northwest Community Hospital encompasses a 465 bed hospital, a day surgery center, 200 bed nursing home, 3 treatment centers, 6 physician office buildings and a business Center. Northwest has installed a Micro-wave Disinfection Unit which shreds, injects with steam, and disinfects potentially infectious medical waste. This technology reduces the volume of solid waste by 80% with zero air or water emissions. The project will save the hospital over \$114,000 per year in disposal costs. The hospital also has a comprehensive waste management plan; staff training; and has had a five fold expansion in their recyclable materials program. This program saves the hospital over \$16,000 per year in cost avoidance. Northwest Community Hospital was able to expand the later program through a community involvement activity that employs mentally and physically challenged persons to collect recyclable materials.

# **HWRIC's Pollution Prevention Services**

The Illinois Hazardous Waste Research and Information Center, a non-regulatory agency, can help your company meet its pollution prevention or waste management needs in a number of ways. Answering questions via telephone, conducting on-site visits and evaluation, in-depth assessments as requested, and assistance with technology modifications through research in our engineering laboratories, are among the services available from HWRIC. Staff engineers have industrial experience and are able to apply their “real-world” knowledge to assist with overcoming problems in implementing pollution prevention programs, plans, or projects.



## **Pollution Prevention Program Development Assistance**

- ◆ On-site presentations on methods to develop a pollution prevention program and increase staff awareness
- ◆ In-depth assessment to aid facility staff in identifying pollution prevention opportunities
- ◆ Work with facility management or staff to develop an action plan for incorporating pollution prevention into the company's way of doing business
- ◆ Train facility staff in pollution prevention concepts and techniques
- ◆ Provide case study examples from our database and extensive library
- ◆ Provide guidance manuals, report, and factsheets on pollution prevention.

## **Process Efficiency Research and Development Assistance**

- ◆ Evaluate equipment or technique for specific processes. Projects can be conducted in HWRIC's pilot lab or on-site utilizing equipment available from the Center. Additionally, HWRIC maintains agreements with equipment suppliers such that many other equipment alternatives can be tested on a trial basis
- ◆ Evaluate materials and material substitutions used in a specific process and their consequent effects on waste generation
- ◆ Provide technical information to a company in order for them to evaluate modifying their waste generating processes in-house vs. using a vendor.



## **Solvent Substitution Testing Program**

Manufacturing processes in many Illinois factories often include product cleaning steps. With impending restrictions on organic solvent use mandated by the Clean Air Act Amendments of 1990 and the targeting of 17 priority chemicals by USEPA's 33/50 voluntary reduction program, manufacturers are examining alternative cleaners. HWRIC investigates techniques designed to reduce or eliminate the use of hazardous solvents and offers businesses a detailed, unbiased examination of available cleaning alternatives.

Center staff have designed an efficient portable system to test a variety of cleaning products under a broad range of conditions. Industries interested in participating in the solvents alternative testing program should contact HWRIC (217) 333-8940.

The goal is to help businesses in Illinois comply with new regulations by identifying less toxic cleaning alternatives, assisting with process modifications to reduce wastes, and helping incorporate waste minimization/pollution prevention into all aspects of daily business operations. HWRIC's partner in this effort is the Illinois Department of Commerce and Community Affairs (DCCA) Small Business environmental Assistance Program. DCCA and HWRIC will use their existing assistance programs to help companies address waste management problems while increasing productivity and competitiveness.





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